C H A P T E R 3

TAKE IMMEDIATE ACTION

All UXOs found on the battlefield affect maneuver and mission capabilities. When you find a UXO, you must make some immediate decisions. These decisions will depend on your current mission, the size and location of the UXO, and your unit's capabilities. Figure 3-1 shows a decision chart to help you decide. This information is also in GTA 9-12-1, which is available at your local TASC.

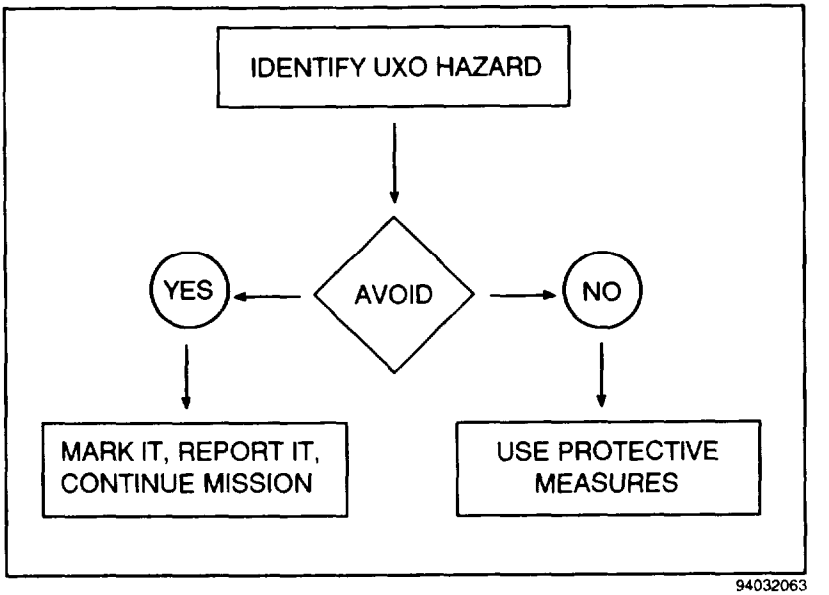

Figure 3-1. Decision chart.

If at all possible, avoiding/bypassing the UXO hazard is *the safest option to take for personnel and equipment. lf the* UXO *hazard is left from a recent enemy attack, you must consider protecting your personnel and equipment by extracting them from the area before another attack is targeted on you. See Chapter 5 for extraction procedures.*

If the mission cannot be accomplish due to the presence of the UXO and the hazard cannot be avoided/bypassed, protective measures must be taken to reduce the hazard to personnel and equipment.

Regardless of the option you choose, the location of the UXO must be clearly marked with UXO markers and the hazard reported to your next higher headquarters. See Chapter 4 for procedures on reporting a UXO hazard.

PROTECTIVE MEASURES

There are three methods you can use to protect personnel and equipment. You can evacuate, isolate, or barricade them.

EVACUATE

Evacuation of all nonessential personnel and equipment is the best protective measure. The evacuation distances given in Figure 3-2 provide a reasonable degree of safety for unprotected personnel and equipment. These distances are based on your estimate of the amount of explosive filler in the UXO. If protective barricades are used around the UXO, these distances can be reduced.

The general rule for estimating the amount of explosive in an ordnance item is as follows: Assume that 50 percent of the total ordnance weight equals the NEW. For example, a 500-pound bomb would be calculated to have 250 pounds of explosive. According to Figure 3-2, the safe distance for unprotected personnel is 625 meters. Refer to Appendixes B through E for the NEW of general ordnance items.

After all personnel and equipment are evacuated, movement within the area should be kept to essential operations only. If equipment cannot be evacuated, only mission-essential personnel should be allowed in the area. The equipment should be protected by barricades and personnel should wear all protective equipment.

Explosive Weight (pounds)	Evacuation Distance (meters)
27 and less	300
30	310
35	330
40	350
45	360
50	375
100	475
150	550
200	600
250	625
300	675
400	725
500	800

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Figure 3-2. Evacuation distances.

ISOLATE

Sometimes, for mission-related, operational, or other reasons, you cannot evacuate personnel and/or equipment or you cannot leave a particular area. When this happens, you must isolate either your assets (personnel, equipment, and operations) from the UXO or isolate the UXO from your assets.

BARRICADE

If your unit is stationary, evacuate all nonessential personnel and equipment out of the hazard area. Equipment that cannot be moved must be protected with barricades. Personnel who cannot be evacuated from the area must also be protected from the hazard. You can do this by reinforcing the fighting positions on the side facing the hazard and by adding overhead cover.

A barricade is an artificial barrier that provides limited protection by channeling the blast and fragmentation from the threatened area. Barricades may also be used to lessen the effect of the blast and to reduce the size of the evacuation area.When determining if

barricades are needed, you must estimate the probable damage that would result if the UXO were to explode. Building artificial barricades is very time consuming and requires a large number of sandbags. Depending on the size of the UXO, barricades can be built around the UXO to protect the entire area, or they can be built next to the equipment or areas that cannot be evacuated.

Use the following general guidelines when building barricades:

- Clculate the total destructive power of the UXO hazard. Multiply the number of items by their NEW.
- Detemine which assets cannot be moved or evacuated from the area safely. For those assets that cannot be moved or evacuated, decide on the type of barricade(s) you will need to protect your assets.
- Determine how mny personnel are available to help build barricades. Use the absolute fewest personnel. Determine what equipment you can use. If earth-moving equipment is available, you can build earth barriers in place of sandbag barricades.
- Caculate the number of sandbags you will need or that are already available to build barricades. Personnel evacuated from the UXO area can fill sandbags and transport them to the barricade site.
- Make sure that all personnel actually building barricades are wearing all available safety equipment, This safety equipment includes a kevlar helmet, a flak vest, and hearing protection.

Placement and Size of Barricades

The barricade should be built no closer to the UXO than the height for the barricade plus 3 feet. Further guidance on the height for barricades is provided later in this section. For example, the barricade shown in Figure 3-3 is 5 feet tall. By adding an additional 3 feet, the barricade is built no closer than 8 feet to the UXO.

When possible, build the barricade between the building and/or the equipment to be protected and the UXO. By positioning the

barricade in this location, personnel who are in or around the building or who are using the equipment will be afforded the greatest protection from the blast and flying fragments. See Figure 3-4.

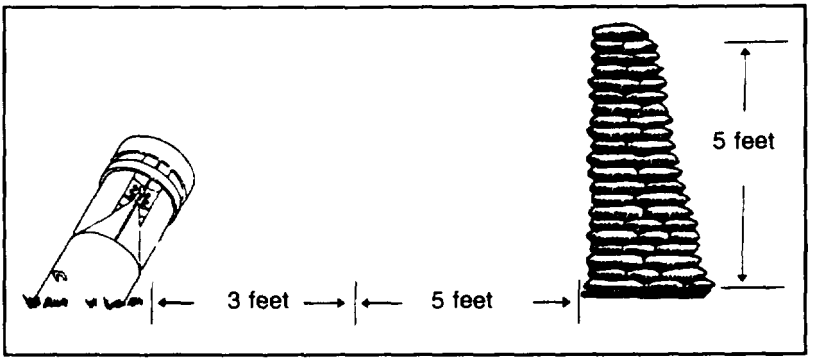

Figure 3-3. Placement distance for barricade.

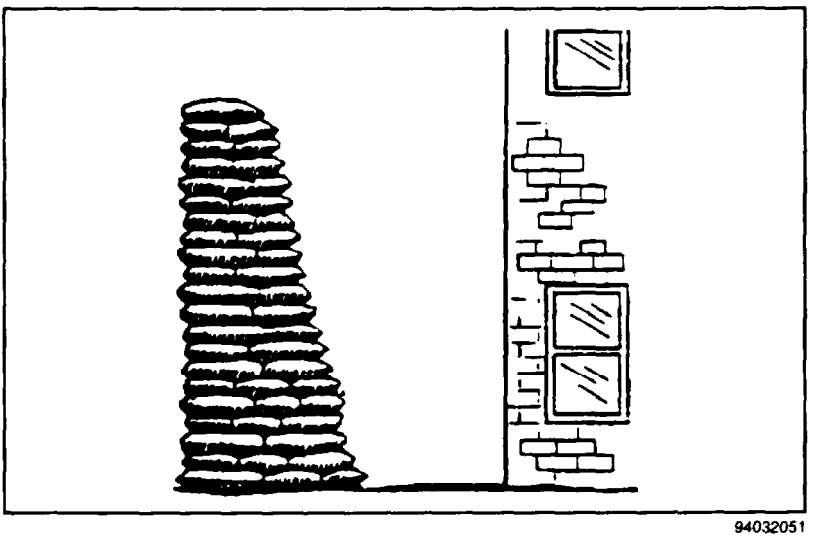

Figure 3-4. Placement of wall barricade.

When building a barricade, the sandbags must be interlocked for stability. See Figure 3-5, page 3-6. Sandbags that are not interlocked will reduce protection and make the barricade unstable.

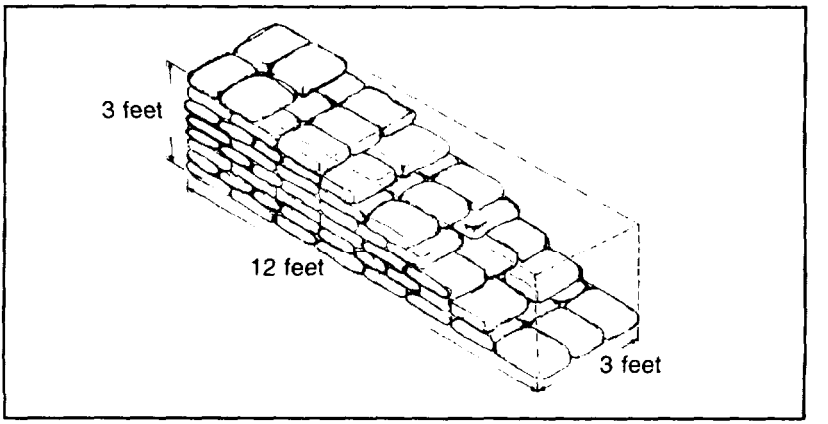

Figure 3-5. Interlocking sandbags.

Small UXO. For small UXOs such as missiles and rockets less than 70 millimeters in diameter, for projectiles less than 75 millimeters in diameter, and for submunitions and grenades, a double-wall thickness of sandbags should surround the area of the UXO. The sandbags must be stacked to a height of at least 3 feet and should be thick enough to protect personnel and equipment from the blast and fragmentation. This type of barricade may be semicircular or circular. Types of barricades are discussed later in this section.

Medium UXO. For medium-sized UXOs such as missiles, rockets, and projectiles up to 200 millimeters in diameter, and for large-sized placed munitions on the surface, a four- or five-wall thickness of sandbags should surround the area. The sandbags must be stacked to a height of at least 5 feet in order to protect assets. This type of barricade is usually semicircular.

Large UXO. Large UXOs such as projectiles, missiles, and general-purpose bombs are too large for effective barricades to be built around them. In these cases, equipment and personnel activity areas would need to be barricaded. A wall barricade between the affected area and the UXO hazard provides the best and easiest protection.

Barricade Types

The three types of barricades are circular, semicircular, and wall. The type barricade that you use will depend on the UXO hazard and the area that requires protection.

Circular. A circular barricade is the best choice for small UXO hazards, because it provides complete protection for personnel and equipment. A circular barricade that is 8 feet in diameter, 3 feet tall, and 3 sandbags thick would require approximately 400 sandbags. The barricade shown in Figure 3-6 will force the blast and

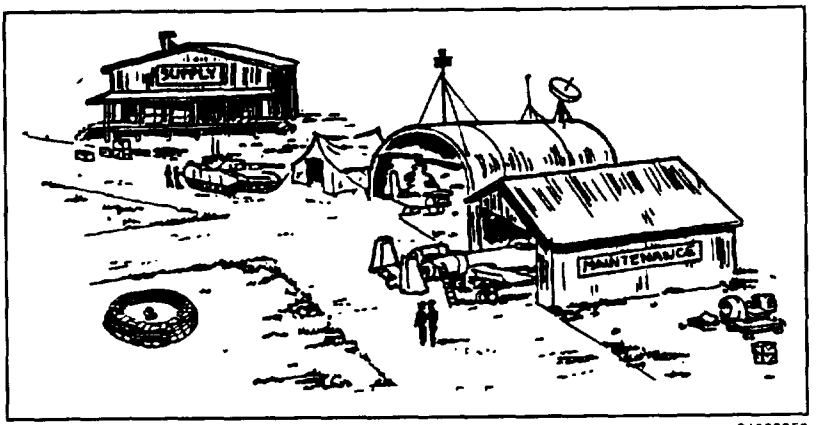

Figure 3-6. Complete circular placement of barricade.

Semicircular. A semicircular barricade is used for small- and medium-sized UXO hazards. It will channel the blast and fragmentation through the open side and away from the protected area. See Figure 3-7, page 3-8.

Wall. The wall barricade protects specific equipment or personnel areas. It is used when the UXO hazard is too large to contain by using a circular or semicircular barricade. The number of wall barricades you need will depend on how much equipment or how many personnel you must protect. A wall barricade that is 12 feet long, 6 feet high, and 3 sandbags thick would require 700 sandbags. As shown in Figure 3-8, page 3-8, the barricade should

extend beyond and be at least as tall as the equipment or personnel areas to be protected. Equipment that is barricaded must still be usable. For example, the radar shown in Figure 3-8 must be left exposed in order to function.

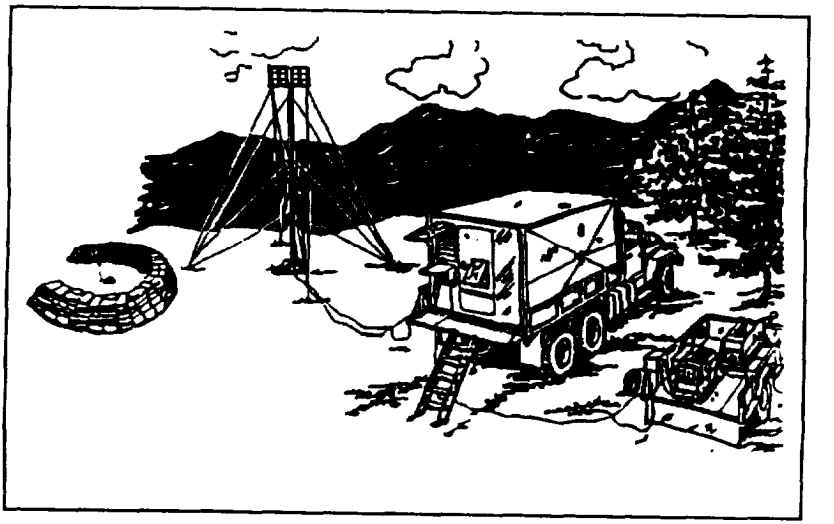

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Figure 3-7. Semicircular placement of barricade.

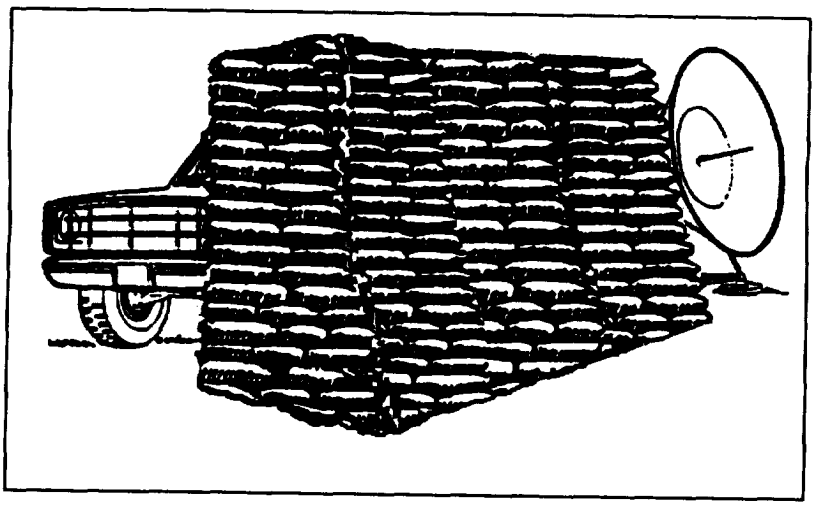

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Figure 3-8. Wall barricade placement.

This item implements STANAG 2002, Edition 7.

MARK UXO

Marking a UXO hazard is just as important as marking other hazard areas such as NBC areas, minefield, and booby-trapped areas. All of these hazards are marked by using triangular signs, if readily available, that by their background color indicate the danger involved. The standard UXO marker is shown in Figure 3-9. The background is red with a white bomb inset. It has the same dimensions as the other markers.

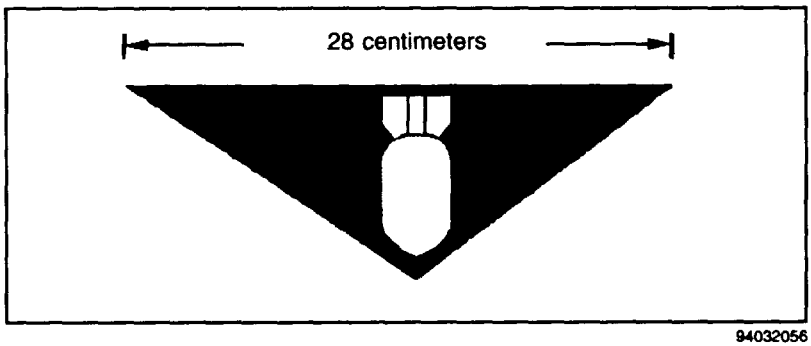

Figure 3-9. Standard UXO marker.

The UXO marker is placed above ground at waist level (about 3 feet) with the bomb pointing down as shown in Figure 3-10, page 3-10. The marker should be placed no closer to the hazard than the point where you first recognized the UXO hazard. The marker should be attached to a stake (Figure 3-10), a tree, or other suitable holder. Just be sure that the marker is clearly visible.

You should also mark all logical approach routes to the area. If the hazard is near a road, as a minimum, put a marker on each side of the road approaching the UXO. If there is a large concentration of UXO hazards such as submunitions, mark the area as you would

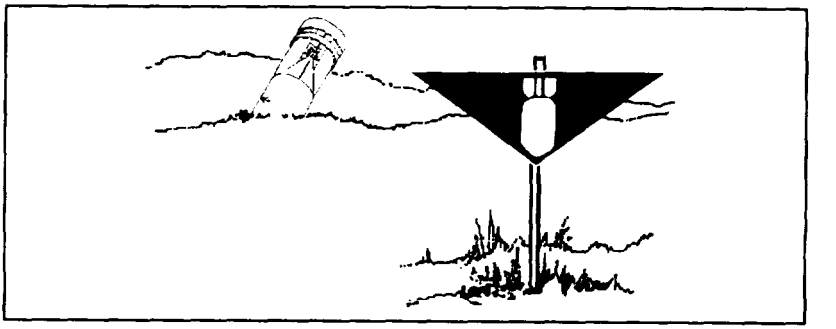

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Figure 3-10. Marking a UXO with standard marker.

a scatterable minefield, with markers placed about every 15 meters around the area. Refer to FM 20-32 for additional information on marking minefield.

As a general rule, the UXO hazard itself must be easily seen from any of the markers. This helps to keep others away from the hazard. It also helps the EOD team to find the hazard.

If standard UXO markers are not available, you may use other suitable materials (such as engineer tape or colored ribbons). Ensure that the same color is used to avoid confusion. When using other materials, the same principles used for the standard markers apply for placement of the makeshift markers. That is, they should be placed about 3 feet off the ground and easily seen from all approach routes. See Figure 3-11.

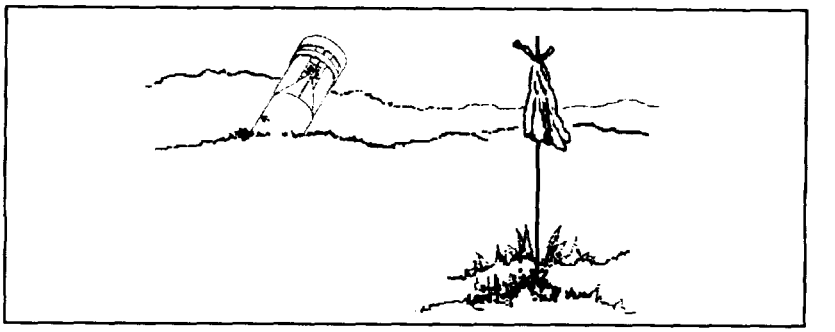

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Figure 3-11. Marking UXO with alternate type of material.